FSNFT-D (8904-A-006)

AUDIO FREQUENCY GENERATOR

1. GENERAL. This procurement requires a programmable and synthesized audio frequency generator capable of generating low distortion sine wave signals over a frequency range of 30 Hz to 200 kHz.

2. CLASSIFICATION. The equipment shall meet the requirements of MIL-T-28800, Type III, Class 5, Style E, Color R for Navy shipboard, submarine, and shore applications with the following modifications and exceptions:

a. The nonoperating temperature requirement is limited to the range of -20°C to +70°C.

b. The relative humidity requirement is limited to 95% noncondensating.

c. The operating and nonoperating altitude requirement is not invoked.

d. The electromagnetic interference requirements of MIL-T-28800 are limited to CE01(-20 dB), CE03, CS01, CS02 (0.5 to 100 MHz), CS06, RE01 (back panel search excluded), RE02 (14kHz to 1 GHz), and RS03.

e. The warm-up time is extended to one hour.

3. OPERATIONAL REQUIREMENTS. The equipment shall be capable of generating signals within the parameters and accuracies specified herein.

3.1 Frequency characteristics. (F = Output frequency).

3.1.1 Range. At least 30 Hz to 200 kHz (600Ω balanced & unbalanced output).

3.1.2 Resolution. At least 0.1 Hz (F <1 kHz); at least 1 Hz (F <10 kHz); at least 10 Hz (F <200 kHz).

3.1.3 Stability.

3.1.3.1 Internal. Better than ±2 pp 10^5/hr (after 1 hr warm-up).

3.1.3.2 External. Equal to the external frequency standard.

3.1.3.2.1 External reference. 1, 5 or 10 MHz signal, TTL compatible.

3.1.4 Spectral purity (sine wave output). (ΔF = offset from output frequency).

3.1.4.1 Distortion. < 0.3% (10 Vrms for 300Hz < F < 200 kHz), < 0.5% (1 Vrms for 30 Hz < F < 300 Hz).

3.1.4.2 Power line. < -45 dBc (ΔF < 300 Hz for F < 100 kHz).

3.1.4.3 Nonharmonics. < -55 dBc (ΔF > 300 Hz for F < 100 kHz).

3.2 Output characteristics.
3.2.1 Sine wave output.

3.2.1.1 Amplitude.

3.2.1.1.1 At least 50 mVrms to 10 Vrms (into matched 600Ω load)

3.2.1.2 Impedance.

3.2.1.2.1 600Ω ±10% (at 1 kHz) balanced & unbalanced.
3.2.1.2 Voltage accuracy. ±12% (30 Hz < F < 100 kHz; matched load).

3.2.1.3 Flatness. ±1 dB (F < 100 kHz); +1,-4 dB (F < 200 kHz) (1 kHz ref).

3.2.1.4 Display. Digital; at least 3 digits.

3.2.1.4.1 Units. At least volts.

3.2.1.4.2 Resolution. 0.1 dB minimum.

3.2.1.5 Connector. Binding post or compatible.

4. GENERAL REQUIREMENTS.

4.1 Power. 115 and 230 Vac ±10%, 50 and 60 Hz, 90W maximum.

4.2 Calibration interval. The calibration interval shall be 12 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.

4.3 Dimensions. The total volume of the unit shall not exceed 900 in^3 (14,750 cm^3).

4.4 Weight. The total weight of the unit shall not exceed 15 lbs (6.8 kg).

4.5 Remote control. Unit must be controllable via the IEEE-488 interface bus; as a minimum, all front panel functions (except AC power) must be remotely controllable when the unit operates as a listener on the bus.